

Revisiting Valuation

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Some time ago (for our hard-core analyst types) we explored one of the most popular methods of determining the value of a business enterprise or a stock. This method, and one that we adhere to most often, is the discounted cash flow (DCF) method of valuation. (See our 2Q 1996 newsletter article relating to this topic.)

We thought that in this day of NASDAQ 4,360 (1,197 in 2Q of 1996), DOW 10,550 (5,729 in 2Q of 1996) and internet stocks trading at a level incomprehensible to many, that we would review some of the more traditional mechanics of DCF valuation.

Traditional valuation measures have centered on some means of comparing Price/Earnings ratios, Price/Book ratios, Price/Cash Flow Ratios or other methods. As we have mentioned on numerous occasions before, there are severe and significant distortions associated with using GAAP earnings when attempting to value a business. This is particularly true when valuing closely-held enterprises. Additional significant distortions occur when using any common measure of book value. Put simply, book value is an accounting fabrication that is of little use when determining the "going concern" value of an enterprise. Even when property and equipment have been properly maintained, we believe that book value is fiction as it relates to valuation.

Our approach to DCF valuation includes 8 steps.

- 1) Estimate cash flow (earnings before interest, taxes, depreciation and amortization or EBITDA) for a period of five years into the future.
- 2) Estimate capital expenditures (CAPX) for the same period.
- 3) Derive free cash flow (FCF) by subtracting CAPX from EBITDA in each year.
- 4) Obtain the present value (PV) of FCF by discounting it at the appropriate discount rate (the discount rate should be the topic of an entire article, but it is generally your required rate of return on investment).
- 5) Estimate the value of the business (terminal value) at the end of the five year period and determine its present value.
- 6) Add the PV of FCF and the PV of the terminal value together to determine discounted value.
- 7) Add net working capital (current assets minus current liabilities) to the discounted value to determine "enterprise value."
- 8) Subtract total debt to determine "equity value."

This can be demonstrated in the following table. All amounts are per share amounts except the discount rate.

Asset Valuation

	1998	1999	2000	2001	2002
Net Income	1.98	2.28	2.64	3.04	3.51
Interest	0.26	0.17	0.12	0.08	0.05
Taxes	1.27	1.45	1.67	1.91	2.20
Depreciation	0.57	0.65	0.73	0.83	0.94
EBITDA	4.07	4.56	5.15	5.86	6.70
CAPX	0.85	0.85	0.85	0.85	0.85
Free Cash Flow	3.22	3.71	4.30	5.01	5.85
Discount Factor	1.1500	1.3225	1.5209	1.7490	2.0114
PV of FCF	2.80	2.80	2.83	2.87	2.91
Total	14.21				
Residual Value		44.66			
PV of Residual	22.20				
Working Capital	4.23				
Enterprise Value	40.65				
Less Debt	5.36				
Net Equity Value	35.28				

The discount rate is your required rate of return on your investment. In this case we used 15%. To get the PV of FCF you simply divide FCF by the discount factor. The discount factor in the second and subsequent years is 1.15^2 , 1.15^3 , etc.

The residual value is where it gets a little tricky. How do you know how much a company is going to be worth 5 years from now? There are several ways to do this. One way is to assign some reasonable (as determined by the market) multiple to EBITDA.

The way we do it is a little simplistic, but it takes a lot of the headache out of it.

We divide year 5 EBITDA (not FCF) by the discount rate, or $\$6.70 / .15 = \44.66 . This is then divided by the year 5 discount factor to get its present value, or $\$44.66 / 2.0114 = \22.20 .

This assumes that year 5 EBITDA is the discount rate's return on the value of the business at the end of year 5 and then capitalizes it at that rate into perpetuity. Is it academically elegant? No. Does it work? Yes.

For you purists, there are a couple of things that we should mention. EBITDA is not GAAP cash flow. The accountants will argue that EBITDA is not cash flow at all, because it does not include changes in working capital. True enough. However, over time, the assumption in this valuation is that working capital is essentially self-funding.

We would argue that GAAP cash flow is not economic cash flow for several reasons. The most important of these reasons is that GAAP cash flow is extremely distorted by the capital structure in the sense that interest expense has been subtracted to arrive at net income under GAAP and that the tax subsidy (interest is tax deductible) effect on the capital structure has not been "grossed up." Another reason relates to the first and that is you cannot compare different companies, even within the same industry, by using GAAP cash flow if their capital structures are different. Go with economic cash flow (EBITDA) and don't argue with your accountant. Just understand EBITDA's limitations as well.

So what does the net equity value of \$35.28 mean? It means that if you believe your projections and your discount rate is 15%, then you would pay a maximum of \$35.28 per share for this company and be willing to assume its debt. Another way to think of this is that if your projections are correct you will earn 15% on your investment of \$35.28.